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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,620	10/27/2003	Alexander Kadyshevitch	PDC/6967.PO2	3908

7590 12/16/2005
PATENT COUNSEL
APPLIED MATERIALS, INC.
Legal Affairs Department
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EXAMINER

VANORE, DAVID A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,620

Applicant(s)

KADYSHEVITCH ET AL.

Examiner

David A. Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,10,13-19,21-23,27 and 30-38 is/are rejected.
- 7) ☒ Claim(s) 3,7-9,11,12,20,24-26,28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 and 14 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 10-11 of the remarks, filed October 21, 2005, with respect to claims 1-38 have been fully considered and are persuasive. The rejection of claims 1-38 using 35 USC 103(a) over Yamada et al. (USPN 6,768,324) has been withdrawn.
2. The applicant has removed the limitation in the claims regarding a deviation in angle being greater than $\arctan(1/AR)$, not illustrated in the Drawings, as previously pointed out. The objection to the drawings is therefore withdrawn.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4-6, 10, 13-19, 21-23, 27, and 30-38 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 10, 13, 15-16, 172, 177, and 179 of copending Application

No. US2004/0021076A1. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

Regarding claims 1 and 15, copending claims 1 and 13 require all the limitations of pending claims 1 and 15 with various differences in language, but not in scope. For example, while claim 1 requires that a beam of charged particles be directed at an angle substantially deviant from the surface normal of the sample towards said openings on said sample, copending claim 1 requires that charged particles irradiate openings on said sample and claim 13 requires that the beam be angled substantially deviant from the surface normal of the specimen. Further, claim 1 requires that a map be created of a region of a sample based on a measured specimen current. Copending claim 1 measures the specimen current to produce an etch indicator signal. This etch indicator signal is then used to analyzed and assess a characteristic of the etch process producing a plurality of test openings. One characteristic would be the position of the test openings. If the position of the test openings is assessed, one has functionally created a map of said test openings. Despite the difference in wording, claims 1 and 15 are unpatentable over copending claims 1 and 13.

Regarding claim 2, claim 2 requires that a measured secondary electron current be utilized along with a measured specimen current to create the map of the contact openings of claim 1. Copending claim 1 sets forth that at least one of specimen current and secondary electrons emitted from the surface of the sample produce the etch indicator above. The language "at least one" provides for the use of both the emitted

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electrons and the specimen current to assess a characteristic of the etch process as explained above. Claim 2 is therefore unpatentable over copending claim 1.

Regarding claim 4, copending claim 1 requires that a characteristic of contact openings be assessed. A depth or height of a contact opening fall into this requirement.

Regarding claims 5 and 6, claims 5 and 6 require the assessment of non-uniformities on the sample. Copending claim 10 requires the assessment of the uniformity of the sample after etching. Therefore, claims 5 and 6 are unpatentable over copending claim 10.

Regarding claim 10, claim 10 defines the sample to be a semiconductor wafer. Copending claim 1 requires a sample which is at least partially conductive, and therefore encompasses a semiconductor. Note further copending claim 16.

Regarding claims 13 and 14, copending claim 1 requires the testing of "contact openings" where contact openings are defined to include contact holes and trenches at paragraph 32 of the copending application. Further note copending claim 16.

Regarding claims 16, copending claim 20 recites detection of a residue within contact openings.

Regarding claim 17, copending claim 15 requires negatively precharging the surface of the sample.

Regarding claims 18 and 27, copending claim 172 recites all the material limitations of the claim and is substantially similar to the method of claim 1 and the method of copending claim 1. Note the explanation of the sample "map" as applied to

claim 1 above and claim 10 above for the explanation regarding the semiconductor wafer limitation.

Regarding claim 19, note the explanation of claim 2 above.

Regarding claims 22 and 23, copending claim 177 addresses the adaptation of the controller to monitor uniformity. Note the explanation of claims 5 and 6 above.

Regarding claim 21, note copending claim 172 and the explanation regarding claim 4 above.

Regarding claims 30 and 31, note copending claim 179 and the explanation of claims 13 and 14 above.

Regarding claim 32, note copending claim 1 and the rationale applied to claim 15.

Regarding claim 33, note copending claim 20 and the rationale applied to claim 16.

Regarding claim 34, note copending claim 15 and the rationale applied to claim 17 above.

Regarding claims 35 and 36, note copending claim 1 where the assessed characteristic is the positions of the first and second layers of copending claim 1. If the positions of the first and second layers are known, their alignments are known and they are therefore "mapped."

Regarding claims 37 and 38, apply the rationale give above for claims 35 and 36 using copending claim 172.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

3. Claims 3, 7-9, 11-12, 20, 24-26, and 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David A Vanore
Patent Examiner
Art Unit 2881

12/14/05